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Research Article

Linking Organizational Agility to Firm Performance through IT Capability: A Structural Equation Modeling Approach

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Abstract:

This study examines the impact of organizational agility—operationalized through competence, flexibility, responsiveness, and rapidity—on firm performance, with a particular emphasis on the mediating role of IT capability. A quantitative survey was conducted among textile sector managers in Rabat, Casablanca, and Fez, and the data were analyzed using SmartPLS and structural equation modeling. The findings reveal that competence, flexibility, and responsiveness significantly enhance IT capability, which, in turn, positively influences firm performance. By contrast, rapidity does not exhibit a significant direct effect. These results highlight the strategic importance of IT capabilities as mediators between agility and performance, and underscore the necessity of aligning digital transformation with human capital development and internal process optimization to fully realize its benefits.

1. Introduction

In an environment characterized by constant economic fluctuations, rapid technological advancements, and the growing integration of artificial intelligence, businesses must continuously adapt to maintain competitiveness and ensure long-term survival. [2][6][13][16]. This dynamic landscape has elevated organizational agility as a strategic imperative, enabling firms to anticipate change, foster innovation, and swiftly respond to market shifts[3]. Rooted in contingency theory and enriched by perspectives such as the resource-based view and complexity theory, organizational agility is operationalized through four key dimensions: rapidity, competence, responsiveness, and flexibility. However, agility alone does not suffice to guarantee enhanced performance. Increasingly, scholarly literature identifies information technology (IT) capacity as a critical mediating enabler, transforming agility into tangible organizational outcomes([22][28][31]

Organizational performance, meanwhile, remains a multifaceted objective encompassing economic, strategic, social, and environmental dimensions. In light of stakeholder theory and the shift towards sustainable value creation, performance assessment demands integrated and context-sensitive frameworks[2][33]. . Against this backdrop, the present research investigates how IT capacity facilitates the translation of agility into performance, particularly within Moroccan firms. Drawing on a quantitative approach, this study surveys managers in the textile sector across Rabat, Casablanca, and Fez, employing SmartPLS and structural equation modeling to validate the proposed relationships.

This introduction thus sets the stage for an empirical examination of the interdependencies between agility dimensions, IT capability, and organizational performance, aiming to uncover how digital capacity can amplify firms' strategic responsiveness and operational efficiency.

2.Literature Review

Organizational agility (OA) has garnered increasing scholarly interest as firms seek to thrive amid volatility and uncertainty. Drawing from strategic management, organizational sociology, and complexity theories, agility is defined by Charbonnier-Voirin (2011) as a firm's capacity to sense environmental changes, reconfigure internal resources, and adapt rapidly. Key attributes include strategic intelligence, flexibility, and rapid decision-making, all of which enable organizations to maintain competitiveness in uncertain contexts. Supporting this view, Burns and Stalker's (1994) contingency theory posits that performance hinges on the alignment between organizational structure and environmental complexity, while Barney (1991) resource-based view emphasizes the value of unique and non-imitable resources in sustaining competitive advantage. Complementing these perspectives, complexity theory (Stacey, 1996) advocates for adaptive, non-linear responses in management practices.

Parallel to agility, organizational performance has evolved from a financially centered concept to one that integrates strategic, operational, human, and environmental indicators. Freeman's (1984) stakeholder theory expanded the evaluative lens, suggesting that firms must align their goals with societal and ethical considerations. As Boulianne (2002) asserts, a multidimensional view of performance prevents reductive assessments and encourages a comprehensive evaluation of outcomes. Contemporary approaches increasingly rely on Big Data and predictive analytics to refine performance measurement, although methodological rigor remains crucial to avoid biases and misinterpretations.

The intersection between agility and performance is mediated by information technology capacity. Far from being a passive tool, IT acts as a structuring agent that accelerates communication flows, decision-making, and operational adaptability [8]. Studies demonstrate that IT enhances firms' responsiveness to environmental signals [4], supports knowledge dissemination and skills development [14], and facilitates real-time strategic alignment. Consequently, IT capacity is essential for converting agility attributes—such as competence and flexibility—into performance gains. Moreover, advanced systems like AI, ERP, and Big Data platforms empower organizations to monitor, adjust, and optimize their processes dynamically [1].

In sum, the literature converges on the notion that organizational agility and IT capacity are not merely complementary but interdependent in driving superior performance. The mediating role of IT is pivotal, acting as a catalyst that transforms dynamic capabilities into strategic outcomes. This conceptual framework underpins the empirical investigation that follows, aiming to validate the mechanisms through which agility, enabled by IT, enhances organizational effectiveness and resilience.

Based on the theoretical perspectives outlined—contingency theory, the resource-based view, stakeholder theory, and complexity theory—this study formulates the following research hypotheses:

H_1: *Organizational rapidity positively influences information technology capability.*

H_2: *Organizational competence has a positive effect on information technology capability.*

H_3: *Organizational responsiveness improves information technology capability.*

H_4: *Organizational flexibility promotes information technology capability.*

H_5: *Information technology capability has a positive effect on organizational performance.*

H_6: *Information technology capability mediates the relationship between agility dimensions (rapidity, competence, responsiveness, flexibility) and organizational performance.*

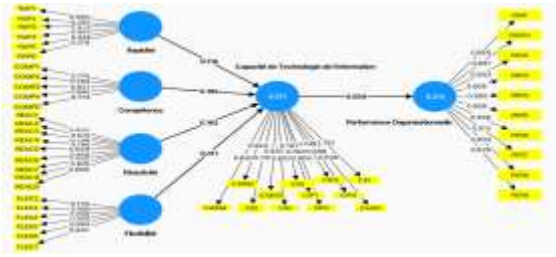
This conceptual framework underpins the empirical investigation that follows, aiming to validate the mechanisms through which agility, enabled by IT, enhances organizational effectiveness and resilience.

3.Analysis and Discussion of Results

This section interprets the relevance of the conceptual model by comparing empirical findings with theoretical insights. It aims to clarify how organizational agility, IT capability, and firm performance are interconnected, highlighting alignments or discrepancies with existing research.

The study's model integrates four predictors of agility rapidity, competence, responsiveness, and flexibility to analyze their influence on IT capability and, indirectly, on organizational performance. Structural equation modeling is applied to assess how these organizational factors are converted into performance drivers

through IT, positioning IT capability as a mediating mechanism.



The model shows that each explanatory variable is associated with specific observed items, which are connected to their underlying latent factor. These items, through their loadings, help evaluate the extent to which organizational dimensions such as rapidity, competence, responsiveness, and flexibility contribute to IT capability. This capability then impacts overall firm performance. The coefficient of determination reveals that 37.1% of the variance in IT capability is explained by these variables, suggesting they play a significant role, although other elements—like financial resources, innovation, or digital culture—may also be important. The adjusted R^2 of 0.332 corrects for the number of predictors used, ensuring a more robust and less biased estimation.

Table 1*The Coefficient of Determination*

	R-squared	Adjusted R-squared
Information Technology Capacity	0.371	0.332
Organizational Performance	0.313	0.303

Organizational performance shows a coefficient of determination of 0.313, indicating that 31.3% of its variance is explained by IT capability. This underscores the mediating role of technological capacity in enhancing performance. However, the fact that most of the variance remains unexplained suggests that additional factors—such as leadership, market dynamics, competition, or managerial competencies—also contribute significantly. The adjusted R^2 of 0.303 reflects a slight downward correction, accounting for model complexity and the number of predictors. Overall, these results support the model's relevance while opening the door for further refinement through the inclusion of complementary explanatory variables.

Table 2. *Validity and reliability of measurement scales*

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
Information Technology Capacity	0.942	0.945	0.949	0.610
Skill	0.863	0.882	0.899	0.640
Flexibility	0.837	0.954	0.887	0.603
Organizational Performance	0.967	0.970	0.971	0.769
Rapidity	0.855	-0.098	0.689	0.307
Reactivity	0.910	0.925	0.925	0.584

Assessing the reliability and validity of the measurement scales is crucial to ensure the robustness of the study's instruments. Cronbach's Alpha values are high for most constructs, all exceeding the 0.7 threshold (Nunnally & Bernstein, 1994), indicating strong internal consistency. Notably, IT capability (0.942) and organizational performance (0.967) demonstrate excellent reliability, while competence (0.863), flexibility (0.837), and responsiveness (0.910) also show satisfactory levels. Although rapidity's Alpha (0.855) meets standards, inconsistencies appear in other reliability measures. Composite reliability confirms the overall robustness of the scales, with values above 0.7, except for rapidity, where rho_a (-0.098) is abnormal and rho_c (0.689) falls short (Fornell & Larcker, 1981), indicating internal consistency issues. For convergent validity, all AVE values exceed the 0.5 threshold—except for rapidity (0.307)—demonstrating satisfactory variance explanation for most constructs. These findings suggest the

overall reliability and validity of the measurement instruments, while highlighting the need to refine the rapidity scale to better capture the underlying construct.

Discriminant validity according to the Fornell criterion Larcker

Table 3. *Discriminant validity according to the Fornell criterion Larcker*

	Information Technology Capacity	Skill	Flexibility	Organizational Performance	Rapidity	Reactivity
Information Technology Capacity	0.781					
Skill	0.318	0.800				
Flexibility	0.537	0.202	0.776			
Organizational Performance	0.560	0.325	0.488	0.877		
Rapidity	0.193	0.017	0.128	0.230	0.554	
Reactivity	0.405	0.234	0.443	0.340	0.130	0.764

The assessment of discriminant validity, following Fornell and Larcker's (1981) criterion, confirms that each latent construct in the model captures a distinct conceptual dimension. This is verified by comparing the square root of the average variance extracted (AVE) for each variable with the inter-construct correlations. The criterion is satisfied when the square root of a construct's AVE exceeds its correlations with all other variables. Results indicate that all constructs meet this requirement. For instance, IT capability has a square root AVE of 0.781, exceeding its correlations with competence (0.318), flexibility (0.537), organizational performance (0.560), rapidity (0.193), and responsiveness (0.405), confirming its distinctiveness. Likewise, organizational performance (0.877), flexibility (0.776), competence (0.800), and responsiveness (0.764) all display sufficient discriminant validity.

Nonetheless, the rapidity construct warrants attention. Although its square root AVE is 0.554—greater than its correlations with other variables—it remains close to some of them, particularly with responsiveness (0.130) and performance (0.230), suggesting potential conceptual overlap. Despite this, the model overall exhibits satisfactory discriminant validity, supporting the integrity of the structural relationships tested.

The hypothesis testing results reveal several statistically significant relationships. Notably, the effect of IT capability on organizational performance is strongly confirmed, with a T-value of 7.324 and a p-value of 0.000. This underscores the pivotal role of digital capacity in enhancing business outcomes, reinforcing its strategic function in process optimization and value creation.

Table 4. *Hypothesis tests*

	T Statistics (|O/STDEV|)	P values
Information Technology Capacity ➔ Organizational Performance	7,324	0.000
Skill ➔ Information Technology Capability	2,494	0.013
Competence ➔ Organizational Performance	2,388	0.017
Flexibility ➔ Information Technology Capacity	4,834	0.000
Flexibility ➔Organizational Performance	3,582	0.000
Rapidity ➔ Information Technology Capacity	0.603	0.547
Rapidity ➔ Organizational Performance	0.586	0.558
Responsiveness ➔ Information Technology Capacity	2.117	0.037
Responsiveness ➔Organizational Performance	2,244	0.033

The analysis confirms that competence, flexibility, and responsiveness significantly enhance IT capability, which in turn positively influences organizational performance. Specifically, skilled personnel ($T = 2.494$, $p = 0.013$), adaptive processes ($T = 4.834$, $p = 0.000$), and responsiveness ($T = 2.117$, $p = 0.037$) are key drivers of technological readiness. Similarly, these same dimensions directly improve organizational performance, highlighting their dual role in shaping both technological capacity and firm outcomes. However, rapidity does not show any significant effect, either on IT capability or performance, suggesting that speed alone, without a coherent technological infrastructure or strategic alignment, does not guarantee improved results.

4. Discussion and Strategic Implications

This study provides a nuanced understanding of how organizational agility and IT capability interact to shape firm performance. The findings reveal that competence, flexibility, and responsiveness significantly enhance IT capability, which in turn positively impacts organizational performance. These dimensions thus play a dual role, both as enablers of technological readiness and as direct drivers of firm success. Conversely, rapidity does not exert a significant effect, either on IT capability or on performance, suggesting that speed alone, without strategic alignment and digital infrastructure, may not suffice to improve outcomes. These results are broadly consistent with previous research. Barlette (2016) and Charbonnier-Voirin (2009) emphasized the mediating role of IT capabilities in transforming agility into competitive advantage. Likewise, Brangier and Bornet (2015) highlighted the importance of digital competencies and flexible organizational structures in facilitating technology adoption. On the other hand, the lack of significance for rapidity diverges from studies such as Fotso and Plane (2023), which viewed execution speed as a strategic differentiator. This discrepancy may be due to contextual factors, such as the nature of the firms studied or their level of digital maturity, where deliberation and structural readiness outweigh speed as drivers of performance.

Moreover, the strong link between IT capability and organizational performance supports the resource-based view of the firm and aligns with the findings of Kaplan and Norton (1992) and Uwizeyemungu (2008), who stress that digital infrastructure enhances operational efficiency, strategic insight, and innovation. Recent work by Benaini and Kabbaj (2022) similarly confirms the productivity gains enabled by digital platforms and optimized resource management.

Managerially, the study underlines the importance of perceiving IT not merely as a tool for automation but as a strategic enabler of organizational transformation. For technology investments to yield their full value, they must be accompanied by the development of human capital, the redesign of processes toward flexibility, and the cultivation of a learning culture. Agility should be structurally embedded within the organization, supported by leadership, and aligned with long-term strategic goals.

5. Conclusion

This research empirically confirms the mediating role of IT capability in the relationship between organizational agility and firm performance. It demonstrates that competence, flexibility, and responsiveness are essential levers for enhancing digital readiness and achieving superior organizational outcomes. The absence of a direct effect for rapidity calls into question the conventional assumption that speed is always beneficial, especially in contexts lacking a strong technological foundation.

From a strategic standpoint, the findings advocate for a holistic approach to digital transformation, where technological investments are tightly coupled with skills development, agile governance, and adaptive organizational culture. Successful firms are those that treat digital capability and organizational agility as interdependent drivers of long-term competitiveness.

Nevertheless, the study has limitations. Its cross-sectional design restricts causal inference, and its focus on the Moroccan textile industry may limit generalizability. Future research should consider longitudinal designs, cross-sectoral comparisons, and the inclusion of additional explanatory factors such as digital leadership, innovation climate, and absorptive capacity.

In conclusion, this study reinforces the view that digital transformation is not a purely technical endeavor, but a strategic and organizational reconfiguration. Firms that internalize this paradigm—by aligning agility, technology, and human capital—are best positioned to thrive in an increasingly volatile and digitized environment.

Author Statements:

- **Ethical approval:** The conducted research is not related to either human or animal use.
- **Conflict of interest:** The authors declare that they have no known competing financial interests or personal relationships that could have

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- **Data availability statement:** The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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